



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII

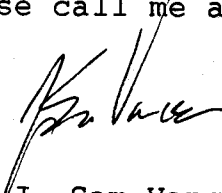
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

JUL 14 1989

Ref: 80EA

TO WHOM IT MAY CONCERN:

Enclosed is the Sharon Steel/Midvale Tailings Superfund site July, 1989 Proposed Plan. Please call me at (303) 294-1515 if you have any questions.


J. Sam Vance
Remedial Project Manager

N/035/006

Sharon Steel
Superfund
Program

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Superfund Program Proposed Plan

U.S. EPA Region VIII

Sharon Steel/Midvale Tailings Site

Midvale, Utah

July 1989

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan identifies the preferred option to remedy the threat posed by contaminated tailings, soil, and ground water at the Sharon Steel/Midvale Tailings Superfund site. This Plan also includes summaries of the other alternatives that were analyzed for this site. This document is issued by the U.S. Environmental Protection Agency (EPA), the lead agency for site activities. EPA will select a final remedy for the site "only after" the public comment period has ended and the information submitted during this time has been reviewed.

The EPA is using this Proposed Plan as part of its public participation responsibilities under sections 104 and 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA). This document summarizes information which can be found in greater detail in the Remedial Investigation and Feasibility Study (RI/FS) reports and other documents contained in the administrative record file for this site. The EPA encourages the public to review these other documents for a more comprehensive understanding of the site and Superfund activities that have been conducted there. The administrative record file, which contains the information upon which the selection of the response action will be based, is available at the following locations:

Ruth Vine Tyler Library
315 Wood Street
Midvale, Utah
Hours: Mon - Thurs, 9:00am - 9:00pm
Fri - Sat, 9:00am - 5:30pm

and

U. S. EPA Library
EPA - Region VIII
999 18th Street, Suite 500
Denver, Colorado 80202
1+(800) 759-4372, ext. 1444
Hours: Mon - Fri, 8:00am - 4:30pm

The EPA may modify the preferred alternative, select another response action presented in this Plan and the RI/FS Report, or select a more appropriate alternative based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives identified here, as well as to provide any information not previously identified. More detailed information on all the alternatives can be found in the FS Report.

MARK YOUR CALENDAR

July 14 - August 21, 1989:

Public comment period on remedies to control contaminated soil and tailings at the Sharon Steel/Midvale Tailings Superfund site.

August 17, 1989:

Public meeting at the Midvale Bowery, Midvale City Park, 327 East 6th Avenue, Midvale, Utah at 7:00 pm.

September 30, 1989:

Record of Decision, which selects final remedial alternative for the Mill site.

SITE BACKGROUND

The Sharon Steel/Midvale Tailings site is located in Midvale, Utah, approximately 12 miles south of Salt Lake City and west of Interstate 15. The 260-acre mill site was used by an ore refining company from 1905 to 1971. Generally, the mill site is bordered by 7800 South Street on the north, by Main Street on the east and the Jordan River on the west and south (see Figure 1, site location map).

Eight buildings are located on the mill site including three small offices, a bunkhouse, a machine storage shed, and three mill buildings. A 22-acre wetland and several small ponds are also located on the mill site. During milling activities at the site, metals such as lead, copper, and zinc were removed from crushed ore. Tailings remaining after metals had been extracted from the ore were deposited on the site. EPA estimates that 14 million cubic yards of tailings currently remain on the site.

An environmental health problem was first suspected in 1982 when the Utah State Department of Health learned that citizens were using windblown tailings from 7800 South Street in sandboxes and gardens. The State analyzed a sample of the "sand" and found that it contained unsafe levels of lead. Samples from the windblown tailings from locations along 7800 South Street showed elevated concentrations of arsenic, cadmium, chromium, copper, lead, and zinc.

Several sampling efforts revealed that contaminated soil, air and ground water were present. EPA proposed the mill site for listing on its National Priorities List [NPL] in 1984. The NPL is a nationwide list of sites that are eligible for investigation and cleanup under the Superfund program.

EPA's Remedial Investigation at the mill site began in July 1987 and continued through June 1988. The study was designed to:

- Identify the nature and extent of contamination related to the site;
- Determine whether current or future contamination from the site may threaten human health or the environment; and

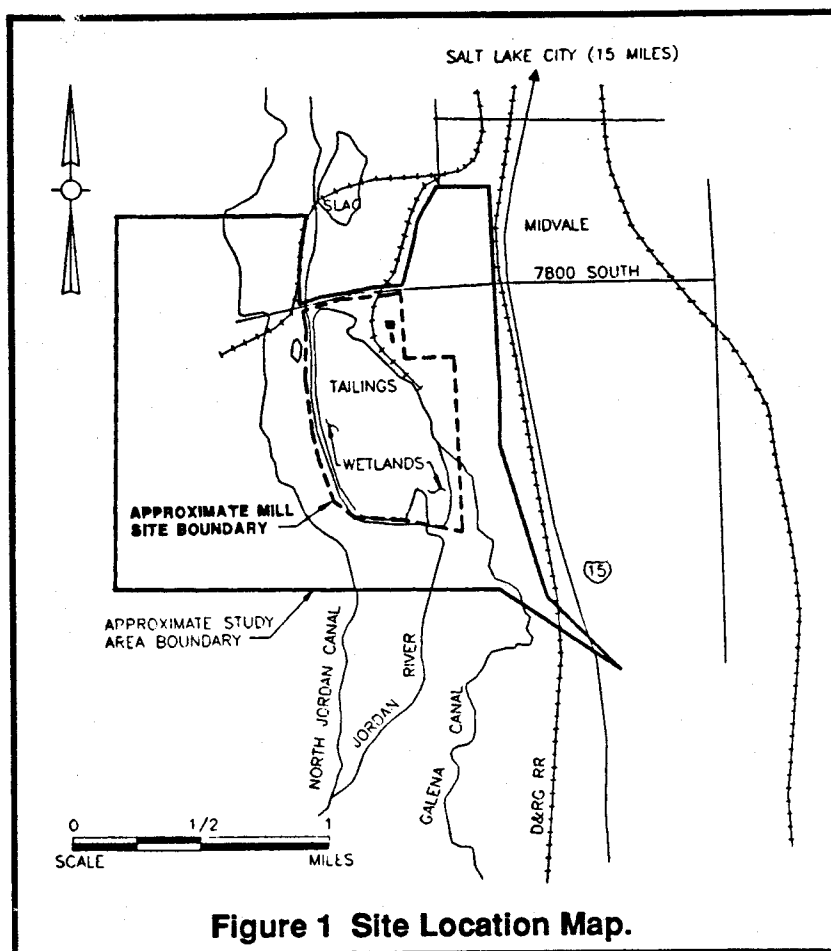


Figure 1 Site Location Map.

- Gather information needed to develop remedial options.

To determine if the site caused a contamination problem, EPA reviewed previous studies conducted near the mill site. EPA also collected samples from the tailings piles, soil, ground water, surface water, sediments, and air in the study area. An Endangerment Assessment (EA) was prepared by EPA to determine risks to human health and the environment resulting from exposure to site contamination.

The EA revealed that lead and arsenic contained in on-site tailings or windblown tailings dust may threaten human health if the tailings themselves or tailings dust are ingested. EPA also concluded that humans may be exposed to contaminants by eating vegetables grown directly on the tailings or in contaminated soil. The greatest risk lies in swallowing tailings and eating leafy and root crops grown in soils contaminated with the tailings. Children are especially at risk because during play it is possible for them to come into contact with dirt that may be contaminated.

EXPLANATION OF OPERABLE UNIT

As with many Superfund sites, the problems at the Sharon Steel site are complex. As a result, the EPA has divided the work into two components called "operable units" (OU). These are as follows:

OU 1: The mill site (includes tailings and mill buildings), and soils and ground water beneath and down-gradient of the mill site.

OU 2: Areas adjacent to and in the vicinity of the site.

The study area was divided into two operable units because each area poses different risks to human health and the environment. OU1, the mill site, is defined as a "source area", because it is the source or cause of the contamination. OU2, is defined as an "impacted area". Frequently, a source area must be contained before the impacted area can be addressed. Otherwise, an already remedied area may be recontaminated by an uncontrolled source. This is why the source area is being addressed first.

This Proposed Plan applies only to OU1, the mill site. Additional studies are planned for addressing contaminated soil in the areas adjacent to and in the vicinity of the site (OU2).

The most serious problems concern: (1) soil contaminated on OU1, and (2) migration of tailings and contaminated soil to areas adjacent to and in the vicinity of the mill site. The preferred alternative will address the principal threats identified above.

SUMMARY OF SITE RISKS

During the RI/FS, an analysis was conducted to estimate the health problems that could result if the tailings, soils, and ground water contamination at the site were not remediated. This analysis is commonly referred to as a baseline risk assessment. In conducting this assessment, the focus was on the health effects that could result from direct exposure of people to contaminants. The analysis was focused on the major contaminants of concern, arsenic and lead.

Arsenic is a heavy metal that is known to cause cancer in laboratory animals and thus is classified as a carcinogen. The most significant carcinogenic risk for arsenic is skin cancer associated with the ingestion of arsenic-contaminated material.

The levels of arsenic found at the site present a risk which exceeds EPA's acceptable cancer risk range. EPA views an acceptable risk as no greater than one addi-

tional cancer related death in ten thousand to ten million people (1×10^{-4} to 10^{-7}). Current conditions at the site exceed this level for children and adults that enter the site. EPA recommends a range of arsenic cleanup levels for soils between 70 and 90 parts per million (ppm).

Levels of arsenic in the shallow unconfined aquifer beneath the site that exceed health-based standards for drinking water. EPA's study has shown ground water beneath and immediately down-gradient of the site is not a current source of drinking water. The ground water discharges to the adjacent Jordan River which is not adversely impacted.

As discussed in the Endangerment Assessment, lead has been shown to cause adverse neurological effects in humans, and especially in young children and fetuses, even at relatively low exposure levels. Information concerning health effects of exposure to lead can be found in Appendix 12-A of the RI report and Appendix D of the FS report.

The typical Superfund approach for non-carcinogenic toxicity, such as lead, is to establish an acceptable daily intake along with relevant exposure assumptions, which are then used to develop remedial objectives. The Center for Disease Control (CDC) guidance on acceptable lead levels for human exposure recommends a range of lead clean-up for soils of between 500 and 1000 parts per million of lead.

EPA is proposing to select an action level within the CDC range. This action level will be chosen in the Record of Decision (ROD). EPA is using this range because of the uncertainties associated with the modeling of the assumptions in Appendix D of the FS report. EPA encourages public comment on the range of values presented here, as well as on the rationale associated with the development of those levels presented in Appendix D of the FS.

The health risks posed by arsenic and lead are, in part, contingent upon the type of land use that will occur on the mill site. Residential uses are likely to result in higher exposure of people to these contaminants. Commercial land use would have a lesser exposure.

SUMMARY OF ALTERNATIVES

After evaluation of a comprehensive list of remedial alternatives, EPA has narrowed its potential alternatives for OU1, the mill site, to five alternatives. EPA proposes to select one as being the remedy for the site.

1. No Action. "No action" is presented as a basis for comparison with other alternatives. However, the No action alternative is identified in accordance with appli-

cable regulations. No action would be considered if the other choices would not result in a more protective remedy. If chosen, quarterly monitoring of air, ground water, and surface water drainage would take place to determine whether contamination was continuing to migrate from the area. Cost: \$850,000.

2. Institutional Controls. This involves placing site controls such as physical barriers to access, land use restrictions, and warning signs. Ground water in the shallow unconfined aquifer beneath the site would not be used. In addition, this alternative would ensure that levels of arsenic would not exceed a level which would cause harmful effects to aquatic life in the Jordan River. That level is 2115 micrograms per liter on arsenic in the shallow unconfined aquifer. Also, if this ground water is needed as a water resource, treatment may be used as part of the alternative. Institutional controls may be part of other alternatives, as well. Cost: \$500,000.

3. Site Capping and Institutional Controls. This alternative includes placing a low permeability cap over all contaminated materials. A cap is a multi-layer cover which will prevent direct contact with contaminated soils. This eliminates airborne transport of contaminated materials and minimizes the vertical passage of water through the contaminated soils. As in the second alternative, ground water treatment may be added, if necessary. Cost: \$31,000,000.

4. Excavation, Off-Site Disposal of Contaminated Soil and Tailings and Institutional Controls. This alternative provides for excavating contaminated tailings and soils, disposal at an off-site facility, and controls on ground water use. Cost: \$434,000,000.

5. Reprocessing, Solidification, and Capping of Processed Tailings. This alternative requires remilling the tailings with the existing or a newly constructed mill. The contaminated soils around the mill site would be added to the tailings along with a chemical or additive that solidifies (or fixes) the waste. The solidified waste is then capped. Cost: \$116,000,000.

EVALUATION OF ALTERNATIVES AND THE PREFERRED ALTERNATIVE

EPA evaluates potential remedial alternatives according to the following nine criteria, as defined below:

Overall Protection of Human Health and Environment addresses whether or not a remedy will remediate a site such that resulting risks are within an acceptable risk range or level.

Compliance with Applicable, Relevant and Appropriate Requirements (ARARs) address whether or not a remedy will meet all of the requirements of other environmental statutes and/or provide grounds for invoking a waiver.

Long-Term Effectiveness and Permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

Reduction of Toxicity, Mobility, or Volume refers to the statutory preference to reduce toxicity, mobility or volume of hazardous substances through treatment.

Short-Term Effectiveness refers to the period of time needed to achieve protection during the construction and implementation period until cleanup goals are met.

Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

Cost Effectiveness compares the cost of alternatives that achieve the same protectiveness. EPA's goal is to choose the less costly of similarly protective remedies.

State Acceptance indicates whether, based on its review of the RI/FS and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative.

Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the RI/FS report and the Proposed Plan.

Based on a balancing of the nine evaluation criteria, EPA has identified Alternative No. 3, **Site Capping and Institutional Controls**, as its Preferred Alternative.

COMPARATIVE EVALUATION OF ALTERNATIVES

Overall Protection of Human Health and the Environment. The No Action alternative does not meet this criterion. The Institutional Controls alternative, while more protective, does not prevent the migration of contaminants from the mill site to the vicinity properties. Consequently, institutional controls are not adequately protective. The remaining three alternatives (3, 4, and 5) are protective of human health and the environment, because they limit exposure to acceptable levels.

ARARs. This evaluation considers primarily Federal ARARs. The State of Utah has initially identified applicable standards, but is still in the process of identifying

appropriate and relevant state standards. EPA will work with the State during the public comment period to achieve full consideration of the State standards.

The No Action alternative and the Institutional Controls alternative would not meet Federal air quality ARARs. The preferred alternative is consistent with the general approach to achieving ground water ARAR's at large sites. Essentially, contaminant standards, such as the Safe Drinking Water Act (SDWA) maximum contaminant levels (MCL), are met in the area of the waste management boundary. Rather than achieve the MCL in the shallow unconfined aquifer beneath and downgradient of the site, which is not being used as a water source at this time, EPA is setting an alternative concentration limit (ACL) consistent with Section 121(d)(ii) of CERCLA, which is 2115 micrograms per liter of arsenic in the shallow unconfined aquifer. This limit, which is defined in the FS Report, ensures that arsenic levels in the aquifer will not cause harmful effects to aquatic life in the Jordan River upon release of that ground water to the river. If this limit is exceeded, or if this ground water becomes an essential water supply, active ground water remediation may be implemented.

The Preferred Alternative does assure that:

1. Ambient air standards will be achieved, since there will be no emissions from a capped impoundment;
2. Water quality standards will be met in the Jordan River as a result of the use of the ACL;
3. Drinking water standards will be achieved in the deep principal aquifer which is used as a drinking water source; and
4. The cap covering the tailings will meet appropriate and relevant closure requirements of the Resource Conservation and Recovery Act (RCRA).

Long-Term Effectiveness and Permanence. The Preferred Alternative is effective over the long-term given proper monitoring and maintenance. If proper operation and maintenance of the cap is performed, this remedy will serve to provide the same effectiveness as the other alternatives. Removal or treatment of the tailings would be more permanent.

Statutory Preference for Reduction of Toxicity, Mobility, and Volume. The Preferred Alternative does not reduce toxicity, mobility, or volume. Off-site disposal also does not meet this criterion. The Reprocessing Alternative does meet the preference for reduction in toxicity and mobility. However, this alternative increases the volume

of waste on the site when the wastes are mixed with a fixing agent.

Short-Term Effectiveness. Capping has the greatest short-term effectiveness of any of the alternatives since it requires the least disturbance of the waste in order to perform the remedy. Both off-site and reprocessing alternatives entail significant disturbance of wastes.

Implementability. The Preferred Alternative is implementable using current technologies and is administratively feasible given cooperation of the State and local governments. The reprocessing alternative may be technically feasible; however, uncertainty remains because of the unproven nature of the technology. In addition, the increased volume of waste resulting from this alternative may not be practicably placed on site. The excavation and off-site disposal alternative, although technically feasible, is not believed to be as implementable as the other alternatives because of the nature and volume of wastes to be moved. In addition, there are administrative feasibility problems associated with moving such a large volume of waste to an off-site disposal location.

Cost-Effectiveness. Three of the alternatives are protective (capping, excavation and disposal, and reprocessing). Of these three, the capping alternative is the most cost-effective.

State Acceptance. The State of Utah has indicated a preference for a remedy which achieves immediately usable sources of drinking water in the unconfined aquifer beneath and down-gradient of the site. The State also proposes excavation and off-site disposal of all tailings and contaminated soils currently present on the site to an off-site location. The State has not identified an ARAR that requires this remedy and has not offered to fund this remedy. EPA believes that the Preferred Alternative achieves the same degree of protectiveness as the remedy proposed by the State of Utah.

Community Acceptance. The City of Midvale has indicated a preference for removal of the wastes in order to allow for unrestricted future development of the Sharon Steel mill site.

EPA awaits further comment from the community on their acceptance of the Preferred Alternative.

In summary, the capping and institutional control alternative is protective of public health and the environment, meets Federal ARARs and is the most cost-effective of all the alternatives which provide a similar degree of protectiveness.

THE COMMUNITY'S ROLE IN THE SELECTION PROCESS

EPA solicits input from the community on the remedial options proposed for each Superfund response action. EPA has set a public comment period from July 14, 1989 through August 21, 1989 to encourage public participation in the selection process. The comment period includes a public meeting at which EPA will present the RI/FS Report and Proposed Plan, answer questions, and receive both oral and written comments.

A public meeting is scheduled at 7:00 pm, August 17, 1989 and will be held at the Midvale Bowery, Midvale City Park, 327 East 6th Avenue, Midvale, Utah.

Comments will be summarized and responses provided in the Responsiveness Summary section of the Record of Decision (ROD). The ROD is the document that presents EPA's final selection for remediation. The public can send written comments to or obtain further information from:

Ali Joseph
Community Relations Coordinator
U.S. Environmental Protection Agency
999 18th Street, Suite 500
Denver, Colorado 80202
(303) 294-7040.
Toll Free 1 (800) 759-4372
between 8:30 am and 4:30 pm (Monday - Friday)

Written comments should be identified as follows:
Sharon Steel Public Comment.

GLOSSARY

CAPPING: Covering contaminated soil with layers of permeable and impermeable materials. The surface of the cap is graded to promote water drainage.

ENDANGERMENT ASSESSMENT: A study conducted as part of a Remedial Investigation that describes the risks posed to public health and/or the environment at a Superfund site.

GROUNDWATER: Water contained in sand, soil, rock or gravel particles beneath the earth's surface. Rain that does not evaporate or immediately flow to rivers, streams, and lakes, slowly seeps into the ground forming a groundwater reservoir. Typically, groundwater flows more slowly than surface water, often along routes that lead to streams, rivers, and lakes.

NATIONAL PRIORITIES LIST: EPA's list of top-priority hazardous substance sites that are eligible for investiga-

tion and remediation under the Federal Superfund program.

OPERABLE UNIT: The National Contingency Plan defines an operable unit as a discrete part of an entire response action. An operable unit may be established based on a particular type of contamination, contaminated media (e.g., soils, water), source of contamination, and/or geographical location.

RECORD OF DECISION (ROD): A public document that explains which remedial alternative(s) will be used at a Superfund site. The Record of Decision is based on information and technical analysis generated during the Remedial Investigation/Feasibility Study and consideration of public comments and community concerns.

REMEDIAL ALTERNATIVE: An alternative to provide a remedy for site contamination.

REMEDIAL INVESTIGATION/FEASIBILITY STUDY: Two distinct but related studies. During the Remedial Investigation the types, amounts, and locations of contamination at a site are identified. In the Feasibility Study, alternatives for remedying the contamination are identified, screened, and compared before a cleanup method is chosen.

REPROCESSING: To perform additional processing on already processed tailings to recover mineral values.

SOLIDIFICATION: The process by which contaminants are solidified or chemically fixed so that contamination will not spread.

TAILINGS: A fine, sandy byproduct of ore milling operations. Tailings often contain high concentrations of finely ground metals such as lead and arsenic.

WETLAND: An area of land that is continually wet such as a swamp or marsh.

HOW TO OBTAIN COPIES OF EPA DOCUMENTS:

Fact sheets, the RI/FS report, and other documents of interest to the public may be reviewed at the following locations:

Ruth Vine Tyler Library

Hours: Mon. - Thurs. 9 a.m. to 9 p.m.

Fri. - Sat. 9 a.m. to 5:30 p.m.

315 Wood Street

Midvale, Utah 84047

Phone: (801) 943-4636

Utah Department of Health

Hours: Mon. - Fri. 8 a.m. to 5 p.m.

288 North 1460 West, 3rd Floor

Salt Lake City, Utah 84116

Phone: (801) 538-6121

City of Midvale

Hours: Mon. - Fri. 8:30 a.m. to 4:45 p.m.

City Hall

80 East Center Street

Midvale, Utah 84047

Phone: (801) 561-1418

U.S. EPA, Region VIII Library

Hours: Mon. - Fri. 8:30 a.m. to 4:30 p.m.

999 18th Street, 2nd Floor

Denver, CO 80202

Phone: (303) 293-1444

IF YOU HAVE QUESTIONS OR COMMENTS:

Please direct your questions or comments to the following EPA personnel.

Technical Information:

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U.S. EPA

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Community Relations:

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Community Relations Coordinator

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(303) 294-7040

MAILING LIST

If you did not receive this fact sheet in the mail and would like to be included on the mailing list for future information, please complete this form and send it to:

Mr. Ali Joseph
Office of External Affairs
U.S. EPA, Region VIII
999 18th Street
Denver, CO 80202

Name _____ Affiliation (if any) _____

Street Address _____

City, State, Zip _____

Phone Number _____

U. S. EPA Region VIII
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Denver, Colorado 80202-2405



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